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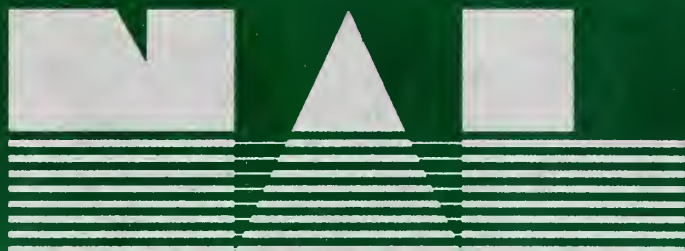
September 1999

Resources for Food Safety and Storage During Emergency Situations

September 1999



**United States
Department of
Agriculture**



National Agricultural Library

Resources for Food Safety and Storage During Emergency Situations

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Compiled By:

Janice Schneider

Food and Nutrition Information Center
National Agricultural Library
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U.S. Department of Agriculture



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Introduction

This publication contains resources and information for the general public and individuals who are educating the public about responses to emergency situations. The majority of the information focuses on food and water safety and storage, before, during and after natural disasters.

A section of Internet Resources is provided. Many local public libraries offer internet connections for those who do not have home access.

The last section of this publication includes resources for Y2K. While this is a particularly timely issue, information in these resources can be applied to other emergency situations beyond the year 2000. However, availability of these materials may be limited.

Acknowledgments

The Food and Nutrition Information Center wishes to thank Jennifer Smith for her extensive review of web sites and publications and Renata Mangrum for her review of Y2K books. Without their time and efforts, this publication would not have been possible.

Brochures and Fact Sheets

The full text items below can be obtained by contacting the agency listed or by visiting the web site.

Cupboard Storage

Kansas State University Extension
24 Umberger Hall
Kansas State University
Manhattan, KS 66506-3402
Telephone: 785-532-5830
Fax: 785-532-7938
E-mail: orderpub@Oz.OzNet.ksu.edu
<http://www.oznet.ksu.edu/library/fntr2/samplers/l806.htm>

Disaster Recovery Publications

Iowa State Extension
Extension Distribution Center
119 Printing and Publications Building
Iowa State University
Ames, Iowa 50011-3171
Telephone: (515) 294-5247
Fax: (515) 294-2945
E-mail: pubdist@exnet.iastate.edu
<http://www.extension.iastate.edu/Pages/communications/recovery/>

Emergency Food and Water Supply

Federal Emergency Management Agency
Contact your Local or State Office of Emergency Management, or write to:
Federal Emergency Management Agency
P.O. Box 70274
Washington, D.C. 20024
<http://www.fema.gov/pte/emfdwtr.htm>

Emergency Preparedness Checklist

Contact your local Red Cross listed in the telephone book or call:
Telephone: 1-800-787-9282
E-mail: Internet@usa.redcross.org
<http://www.crossnet.org/disaster/safety/foodwtr.pdf>

Emergency Response Fact Sheets

Cooperative Extension

UMCE Communications Office

5741 Libby Hall, Room 110

University of Maine

Orono, ME 04469-5741

Telephone: (207) 581-3269

Fax: (207) 581-1387

<http://www.umext.maine.edu/emergency/tblcontent.htm>

Food Storage in the Home

Utah State University Extension Publications

Utah State University

8960 Old Main Hill

Logan, UT 84322-8960

Telephone: (435)797-2251

<http://www.ext.usu.edu/publica/foodpubs.htm>

Food Storage for Safety and Quality

Cooperative Extension Resource Center

115 General Service Building

Colorado State University

Fort Collins, Colorado 80523

Telephone: (970) 491-7334

Fax: 970-491-2961

<http://www.colostate.edu/Depts/CoopExt/PUBS/FOODNUT/pubfood.html#top>

Food and Water in an Emergency

Contact your local Red Cross listed in the telephone book or call:

Telephone: 1-800-787-9282

E-mail: Internet@usa.redcross.org

<http://www.crossnet.org/disaster/safety/foodwtr.pdf>

Home Food Storage Management Plan

Utah State University Extension Publications

Utah State University

8960 Old Main Hill

Logan, UT 84322-8960

Telephone: 435-797-2251

<http://www.ext.usu.edu/publica/foodpubs.htm>

If Your Freezer Stops

Cooperative Extension Resource Center

115 General Service Building

Colorado State University

Fort Collins, Colorado 80523

Telephone (970) 491-7334

Fax 970-491-2961

<http://www.colostate.edu/Depts/CoopExt/PUBS/FOODNUT/pubfood.html#top>

Picking Up the Pieces After a Natural Disaster

Cooperative Extension

Extension Distribution Center

20 Coffey Hall

1420 Eckles

University of Minnesota

St. Paul MN 55108-6069

Telephone: 612-624-4900 or 800-876-8636

Fax: (612) 625-6281

E-mail: order@extension.umn.edu

<http://www.extension.umn.edu/Documents/K/A/Tables/food.html>

Safe Drinking Water from Wells in Flooded Areas

Cooperative Extension

Extension Distribution Center

20 Coffey Hall

1420 Eckles

University of Minnesota

St. Paul, MN 55108-6069

Telephone: 612-624-4900 or 800-876-8636

Fax: (612) 625-6281

E-mail: order@extension.umn.edu

<http://www.extension.umn.edu/Documents/D/D/DD6213.html>

Seven Day Food Supply

North Dakota Cooperative Extension

Distribution Center, NDSU Extension Service

Morrill Hall, P.O. Box 5655

North Dakota State University

Fargo, ND 58105-5655

Telephone: 701-231-7882

Fax: 701-231-7044

E-mail: dctr@ndsuent.nodak.edu

<http://www.ag.ndsu.nodak.edu/coping/7dayfood.htm>

Storing Food Safely at Home

Rutgers Cooperative Extension Service

Cook College

88 Lipman Drive

New Brunswick, NJ 08901-8525

Telephone: 732-932-9306

<http://www.rce.rutgers.edu/fcs/fcsfoodnutrition/index.htm>

Internet Sites

Children, Stress, and Natural Disasters

University of Illinois Cooperative Extension Disaster Resources

<http://www.ag.uiuc.edu/~disaster/teacher/teacher.html>

Community and Family Preparedness - Resource Information & Materials

American Red Cross

<http://www.humanitarian.net/prepare.html>

Consumer's Guide: Preparing an Emergency Food Supply

The University of Georgia - College of Family and Consumer Sciences Extension

<http://www.fcs.uga.edu/pubs/current/FDNS-E-34-CS.html>

Disaster Fact Sheets

University of Illinois Cooperative Extension Disaster Resources

http://www.ag.uiuc.edu/~disaster/guide/g_facts.html

Facts About Food and Floods

Kansas State University Extension

<http://www.oznet.ksu.edu/library/fntr2/samplers/mf2125.htm>

Food Keeper (Food Storage Information)

Food Marketing Institute

<http://www.fmi.org/foodkeeper/search.htm>

Flood Response Information

Missouri University Cooperative Extension

<http://outreach.missouri.edu/floodinfo/>

Food Preservation

Delaware Cooperative Extension

<http://bluehen.ags.udel.edu/deces/fnf/fp-list.htm>

Food Safety and Natural Disasters

Cornell Cooperative Extension

<http://cce.cornell.edu/health/safety/food-safety.html>

Food and Water Safety and What to do When the Power Goes Off

North Carolina State University Cooperative Extension

<http://www.ces.ncsu.edu/disaster/#food>

How to Prepare for Disasters

University of Illinois Cooperative Extension

<http://www.ag.uiuc.edu/~disaster/prep.html>

Keep Food Safe - When the Power Is Out

Delaware Cooperative Extension

<http://bluehen.ag.s.udel.edu/deces/fnf/fs-list.htm>

Planning for Food After a Disaster

University of Arkansas Cooperative Extension

<http://www.uaex.edu/computer/y2kseries1.htm>

Preparedness Publications

Oregon State University Extension Service

<http://www.cas.psu.edu/docs/casdept/familyliving/cb/Y2K.pdf>

What to do After Natural Disasters

North Carolina Cooperative Extension Service

<http://www.ces.ncsu.edu/depts/foodsci/agentinfo/hot/natdis.html>

Books/Publications/Cookbooks

These books are available in many libraries. You may also order these through your favorite on-line or local bookstore.

Emergency Disaster Survival Guidebook. Doug King. ABC Preparedness Company, 1999. 100 p.

To order, write to:

Doug King

ABC Preparedness Company

P. O. Box 795

Sandy, UT 84091

Food Storage Cooking School: "Use It or Lose It"

The intent of the book is to assist individuals in practical acquisition and use of food storage. It is designed for personal use or as a teaching tool for non-profit groups. Available from the Extension Bulletin Room, 8960 Old Main Hill, Utah State University, Logan UT 84322-8960. Cost is \$6.50 for the book and \$3.15 postage for mail in USA (or \$9.65 for single copy). Call 435-797-2251 for postage costs on multiple copies. The entire book is available on the world wide web at: <http://www.ext.usu.edu/publica/foodpubs.htm>

Keeping Food Fresh: How to Choose and Store Everything You Eat. Revised Edition. Janet Bailey. Harper & Row Publishers, 1995. 378 p.

Wright's Complete Disaster Survival Manual. Ted Wright. Hampton Roads Publisher, 1993. 285 p.

To order, call:

Hampton Roads Publisher

Charlottesville, VA

1-800-766-8009 (orders only)

Cookbooks

15 Minute Storage Meals: Quick, Healthful Recipes & Food Storage Handbook. Jayne Benkendorf. RG Printing, 1999. 134 p. (Write to: RG Printing, 706 W. California, Oklahoma City, OK 73102)

Catastrophic Cooking. Carol Reid. 1999. 232 p. (P.O. Box 7445, Northridge, CA 91327-7445)

Cookin' with Home Storage. Peggy Layton. Digest Printing, 1998. 275 p. (Write to: Peggy Layton, P.O. Box 44, Manti, Utah 84642, Telephone No.: 435-835-0311)

Y2K Information

101 Ways to Survive the Y2K Crisis. Stephen F. Tomajczyk. New York: St. Martin's Press, 1999. 240 p.

Consumers Guide to Y2K

To order printed copies of this publication in English or Spanish, call 1-888-261-6214. This document is also available online in Spanish and Portuguese from the Federal Emergency Management Agency (FEMA).

Other Preparedness materials are available by calling FEMA at 1-800-480-2520, or writing: FEMA, P.O. Box 2013, Jessup, MD 20794-2012

Consumers and the Year 2000 (Y2K)

Pennsylvania State Cooperative Extension (Full text available on web site) or order hard copies from: The Publications Distribution Center, 112 Agricultural Administration Building, The Pennsylvania State University, University Park, PA 16802, Telephone 814-865-6713.

<http://www.cas.psu.edu/docs/casdept/familyliving/cb/Y2K.pdf>

Food Supply Working Group/USDA (Internet only)

The Food Supply Working Group (FSWG) provides information via this web site as a public service.

<http://www.usda.gov/aphis/FSWG/>

President's Council on Year 2000 Conversion

This organization, established by President Clinton, has an Internet site (<http://www.y2k.gov/>) and a toll-free line for general Y2K information (888-USA-4-Y2K or 888-872-4925).

The Complete Y2K Home Preparation Guide. Ed Yourdon, Robert Rokind, 1-800-382-3419, Prentice Hall Computer Books, New Jersey, 1999. 389 p.

The Y2K Survival Guide and Cookbook. Second Printing. Dorothy and Albert Bates. The Book Publishing Company, P. O. Box 99, Summertown, TN 38483. Telephone 931-964-3571. 124 p.

Y2K and other Disaster Planning Information (Internet only)

University of Arkansas Cooperative Extension

<http://www.uaex.edu/computer/y2k.htm>

Y2K Citizen's Action Guide: Preparing yourself, your family, and your neighborhood for the year 2000 computer problem and beyond. Eric Utne. 1-800-878-7323. Minneapolis: Utne Reader Books, 1998. 120 p.

Y2K Information and Other Disaster Planning Information (Internet only)

University of Arkansas Cooperative Extension

<http://www.uaex.edu/computer/y2k.htm>

Y2K Emergency Preparedness Handbook. Darlene Jan and Frank Wong. Ten Speed Press Publishing, P. O. Box 7123, Berkeley, CA 94707, 1999. 52 p.

Y2K Solutions (Internet links to food-related information on Y2K)

Food Marketing Institute, 800 Connecticut Avenue, N.W., Washington, DC 20006

Telephone: 202-452-8444

E-mail: fmi@fmi.org

<http://www.fmi.org/industry/y2k/testimony.html>

Y2K Resource Tip Sheet: Food Safety and Storage for Emergency Preparedness

Colorado Cooperative Extension (Internet only)

<http://www.colostate.edu/Depts/CoopExt/SITE/y2kfdfs.html>

Y2K Resource Tip Sheet: Three-Day Emergency Supply of Shelf-Stable Food for One Person (Internet only)

Colorado Cooperative Extension

<http://www.colostate.edu/Depts/CoopExt/SITE/y2k3day.html>

Appendix

Food and Water in an Emergency

Developed by
The Federal Emergency Management Agency
and The American Red Cross

Food and Water in an Emergency

How to Store Water

Store your water in thoroughly washed plastic, glass, fiberglass or enamel-lined metal containers. Never use a container that has held toxic substances.

Plastic containers, such as soft drink bottles, are best. You can also purchase food-grade plastic buckets or drums.

Seal water containers tightly, label them and store in a cool, dark place. Rotate water every six months.

Emergency Outdoor Water Sources

If you need to find water outside your home, you can use these sources. Be sure to purify the water according to the instructions on page 3 before drinking it.

- Rainwater
- Streams, rivers and other moving bodies of water
- Ponds and lakes
- Natural springs

Avoid water with floating material, an odor or dark color. Use saltwater only if you distill it first. You should not drink flood water.

If an earthquake, hurricane, winter storm or other disaster strikes your community, you might not have access to food, water and electricity for days, or even weeks. By taking some time now to store emergency food and water supplies, you can provide for your entire family. This brochure was developed by the Federal Emergency Management Agency in cooperation with the American Red Cross and the U.S. Department of Agriculture.

Having an ample supply of clean water is a top priority in an emergency. A normally active person needs to drink at least two quarts of water each day. Hot environments can double that amount. Children, nursing mothers and ill people will need even more.

You will also need water for food preparation and hygiene. Store a total of at least one gallon per person, per day. You should store at least a two-week supply of water for each member of your family.

If supplies run low, never ration water. Drink the amount you need today, and try to find more for tomorrow. You can minimize the amount of water your body needs by reducing activity and staying cool.



Federal Emergency
Management Agency



American
Red Cross

Short-Term Food Supplies

Even though it is unlikely that an emergency would cut off your food supply for two weeks, you should prepare a supply that will last that long.

The easiest way to develop a two-week stockpile is to increase the amount of basic foods you normally keep on your shelves.

Storage Tips

- Keep food in a dry, cool spot—a dark area if possible.
- Keep food covered at all times.
- Open food boxes or cans carefully so that you can close them tightly after each use.
- Wrap cookies and crackers in plastic bags, and keep them in tight containers.
- Empty opened packages of sugar, dried fruits and nuts into screw-top jars or air-tight cans to protect them from pests.
- Inspect all food for signs of spoilage before use.
- Use foods before they go bad, and replace them with fresh supplies, dated with ink or marker. Place new items at the back of the storage area and older ones in front.

Nutrition Tips

During and right after a disaster, it will be vital that you maintain your strength. So remember:

- Eat at least one well-balanced meal each day.
- Drink enough liquid to enable your body to function properly (two quarts a day).
- Take in enough calories to enable you to do any necessary work.
- Include vitamin, mineral and protein supplements in your stockpile to assure adequate nutrition.

Hidden Water Sources in Your Home

If a disaster catches you without a stored supply of clean water, you can use the water in your hot-water tank, pipes and ice cubes. As a last resort, you can use water in the reservoir tank of your toilet (not the bowl).

Do you know the location of your incoming water valve? You'll need to shut it off to stop contaminated water from entering your home if you hear reports of broken water or sewage lines.

To use the water in your pipes, let air into the plumbing by turning on the faucet in your house at the highest level. A small amount of water will trickle out. Then obtain water from the lowest faucet in the house.

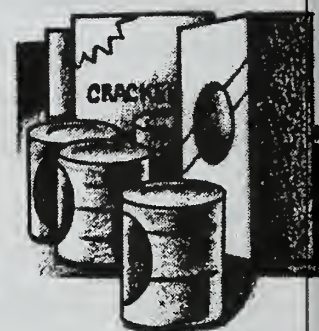
To use the water in your hot-water tank, be sure the electricity or gas is off, and open the drain at the bottom of the tank. Start the water flowing by turning off the water intake valve and turning on a hot-water faucet. Do not turn on the gas or electricity when the tank is empty.

When Food Supplies Are Low

If activity is reduced, healthy people can survive on half their usual food intake for an extended period and without any food for many days. Food, unlike water, may be rationed safely, except for children and pregnant women.

If your water supply is limited, try to avoid foods that are high in fat and protein, and don't stock salty foods, since they will make you thirsty. Try to eat salt-free crackers, whole grain cereals and canned foods with high liquid content.

You don't need to go out and buy unfamiliar foods to prepare an emergency food supply. You can use the canned foods, dry mixes and other staples on your cupboard shelves. In fact, familiar foods are important. They can lift morale and give a feeling of security in time of stress. Also, canned foods won't require cooking, water or special preparation. Following are recommended short-term food storage plans.



Special Considerations

As you stock food, take into account your family's unique needs and tastes. Try to include foods that they will enjoy and that are also high in calories and nutrition. Foods that require no refrigeration, preparation or cooking are best.

Individuals with special diets and allergies will need particular attention, as will babies, toddlers and elderly people. Nursing mothers may need liquid formula, in case they are unable to nurse. Canned dietetic foods, juices and soups may be helpful for ill or elderly people.

Make sure you have a manual can opener and disposable utensils. And don't forget nonperishable foods for your pets.

How to Cook If the Power Goes Out

For emergency cooking you can use a fireplace, or a charcoal grill or camp stove can be used outdoors. You can also heat food with candle warmers, chafing dishes and fondue pots. Canned food can be eaten right out of the can. If you heat it in the can, be sure to open the can and remove the label first.

Three Ways to Purify Water

In addition to having a bad odor and taste, contaminated water can contain microorganisms that cause diseases such as dysentery, typhoid and hepatitis. You should purify all water of uncertain purity before using it for drinking, food preparation or hygiene.

There are many ways to purify water. None is perfect. Often the best solution is a combination of methods.

Two easy purification methods are outlined below. These measures will kill most microbes but will not remove other contaminants such as heavy metals, salts and most other chemicals. Before purifying, let any suspended particles settle to the bottom, or strain them through layers of paper towel or clean cloth.

BOILING. Boiling is the safest method of purifying water. Bring water to a rolling boil for 3-5 minutes, keeping in mind that some water will evaporate. Let the water cool before drinking.

Boiled water will taste better if you put oxygen back into it by pouring the water back and forth between two clean containers. This will also improve the taste of stored water.



DISINFECTION. You can use household liquid bleach to kill microorganisms. Use only regular household liquid bleach that contains 5.25 percent sodium hypochlorite. Do not use scented bleaches, colorsafe bleaches or bleaches with added cleaners.

Add 16 drops of bleach per gallon of water, stir and let stand for 30 minutes. If the water does not have a slight bleach odor, repeat the dosage and let stand another 15 minutes.

The only agent used to purify water should be household liquid bleach. Other chemicals, such as iodine or water treatment products sold in camping or surplus stores that do not contain 5.25 percent sodium hypochlorite as the only active ingredient, are not recommended and should not be used.

While the two methods described above will kill most microbes in water, distillation will remove microbes that resist these methods, and heavy metals, salts and most other chemicals.

DISTILLATION. Distillation involves boiling water and then collecting the vapor that condenses back to water. The condensed vapor will not include salt and other impurities. To distill, fill a pot halfway with water. Tie a cup to the handle on the pot's lid so that the cup will hang right-side-up when the lid is upside-down (make sure the cup is not dangling into the water) and boil the water for 20 minutes. The water that drips from the lid into the cup is distilled.



Shelf-life of Foods for Storage

Here are some general guidelines for rotating common emergency foods.

■ Use within six months:

- Powdered milk (*boxed*)
- Dried fruit (*in metal container*)
- Dry, crisp crackers (*in metal container*)
- Potatoes

■ Use within one year:

- Canned condensed meat and vegetable soups
- Canned fruits, fruit juices and vegetables
- Ready-to-eat cereals and uncooked instant cereals (*in metal containers*)
- Peanut butter
- Jelly
- Hard candy and canned nuts
- Vitamin C

■ May be stored indefinitely (*in proper containers and conditions*):

- Wheat
- Vegetable oils
- Dried corn
- Baking powder
- Soybeans
- Instant coffee, tea and cocoa
- Salt
- Noncarbonated soft drinks
- White rice
- Bouillon products
- Dry pasta
- Powdered milk (*in nitrogen-packed cans*)

Supplies

It's 2:00 a.m. and a flash flood forces you to evacuate your home—fast. There's no time to gather food from the kitchen, fill bottles with water, grab a first-aid kit from the closet and snatch a flashlight and a portable radio from the bedroom. You need to have these items packed and ready in one place before disaster strikes.

Pack at least a three-day supply of food and water, and store it in a handy place. Choose foods that are easy to carry, nutritious and ready-to-eat. In addition, pack these emergency items:

- Medical supplies and first aid manual
- Hygiene supplies
- Portable radio, flashlights and extra batteries
- Shovel and other useful tools
- Household liquid bleach to purify drinking water.
- Money and matches in a waterproof container
- Fire extinguisher
- Blanket and extra clothing
- Infant and small children's needs (if appropriate)
- Manual can opener

If the Electricity Goes Off...

FIRST, use perishable food and foods from the refrigerator.

THEN, use the foods from the freezer. To minimize the number of times you open the freezer door, post a list of freezer contents on it. In a well-filled, well-insulated freezer, foods will usually still have ice crystals in their centers (meaning foods are safe to eat) for at least three days.

FINALLY, begin to use non-perishable foods and staples.

Your Local Contact is:

Learn More

If you are interested in learning more about how to prepare for emergencies, contact your local or State Office of Emergency Management or local American Red Cross chapter, or write to
FEMA
PO BOX 2012
JESSUP MD 20794-2012
and ask for any of the following publications:

Emergency Preparedness Checklist
(L-154) Item #8-0872
ARC 4471

Your Family Disaster Supplies Kit
(L-189) Item #8-0941
ARC 4463

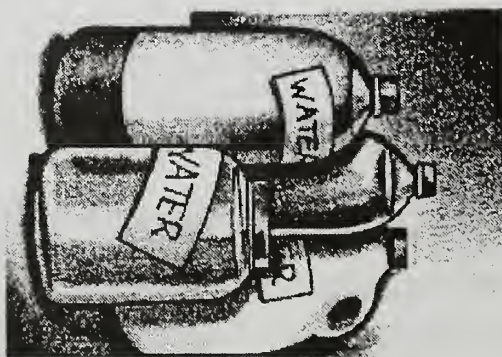
Your Family Disaster Plan
(L-191) Item #8-0954
ARC 4466

Are You Ready? Your Guide to Disaster Preparedness
(H-34) Item #8-0908

Emergency Preparedness Publications
(L-164) Item #8-0822

ARC-5055
FEMA® L210
November 1994

Food & Water in an Emergency



In a disaster, you might be cut off from food, water and electricity for days. By preparing emergency provisions, you can turn what could be a life-threatening situation into a manageable problem.



Federal Emergency
Management Agency



American
Red Cross

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AD5107